The Excavating Engineer

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Dragline Excavation on the Catskill Aqueduct, New York

Description of Work Now Being Carried On by the Thomas Crimmins Contracting Company on Contract No. 211, Board of Water Supply, New York City

THE well-known firm of Thomas Crimmins Contracting Company of New York have now under way a most interesting piece of dragline work in conjunction with their Contract No. 211 for the Board of Water Supply of New York City.

Work on this contract was started on May 1st of this year and it is expected that it will be completed within three years. These operations are, of course, only in their early stages at present, but enough has been accomplished to demonstrate clearly how the contractors are attacking the excavation problems.

General Description of Contract

In general this contract calls for the furnishing and laying of approximately twenty thousand linear feet of 11-ft. 3-inch steel pipe in two parallel trenches at four different points on the Catskill Aqueduct, in that part of the aqueduct between Kensico and Hill View Reservoirs. Each one of these siphons is to consist of two pipes parallel to the existing pipe which at the present time carries the water supply for the City of New York. These pipes will be enveloped with concrete and lined with Portland cement mortar and covered with an embankment of earth and rock. Some of the quantities in connection with this contract are as follows:

35,000 cu. yd. removal of soil.
172,000 cu. yd. earth excavation.
37,000 cu. yd. rock excavation.
182,000 cu. yd. refilling and embanking.
30,000 cu. yd. surface dressing.
13,840 lin. ft. 3-in. steel pipe, $\frac{7}{16}$-in. plate, lap-joints.

30-B Bucyrus Dragline Stripping 8 Inches of Top Soil from the Line of the Proposed Excavation

Bryn Mawr East Trench Looking North Towards the Tuckahoe Road

Looking South from Tuckahoe Road to Low Point of Valley

Bryn Mawr East Trench Looking North towards Tuckahoe Road Crossing Trench at Upper Right

Rock cut near north end of Bryn Mawr Siphon, East Trench. Top-soil, cast aside, may be seen against the right-of-way wall at the extreme right.

470 lin. ft. 11-ft. 3-in. steel pipe, ½-in. plate, lap-joints.
4,555 lin. ft. 11-ft. 3-in. steel pipe, ½-in. plate, longitudinal butt-joints.
1,085 lin. ft. 11-ft. 3-in. steel pipe, $\frac{9}{16}$-in. plate, longitudinal butt-joints.
60,000 lbs. steel castings.
35,000 lbs. steel for reinforcing concrete.
72 bbls. Portland Cement.
36,800 cu. yd. concrete masonry around steel pipes.
1,600 cu. yd. concrete masonry for blow-off chambers, culverts, water ways, retaining walls and other appurtenant structures.

Dragline Operations

At the time that this article was written, excavation operations are under way at the southernmost of the four siphons, the Bryn-Mawr Siphon, in the city of Yonkers. They are using for this purpose two 30-B Bucyrus dragline excavators mounted on caterpillars and equipped with 35-foot booms and one-yard buckets. The work is being directed from a field office at Tuckahoe, New York.

As the top soil is scanty in many places, and as a great deal will be needed for spreading on embankments and other slopes in order to support the grass in a satisfactory manner, the contract requires that all available soil should be removed and conserved with the greatest of care for this subsequent use.

The Two 30-B Draglines Busy on a Heavy Cut

One of the first tasks, therefore, assigned to both dragline excavators was the stripping of this top soil; this was removed to a depth of about eight inches from the line of excavation and embankment and cast aside. The results accomplished by means of this operation were most satisfactory.

Both machines have also been used to excavate a trench alongside of the existing pipe. This pipe, as has been noted before, carries the present water supply for the City of New York, consequently it is necessary to exercise every possible precaution in order to avoid injury or damage to this pipe. Very careful dragline operation is, therefore, necessary.

Another View of the Stripping of the Top Soil, Showing the Existing Pipe Line Which Carries the Water Supply of the City of New York

The depth of this trench has varied from a few feet up to twenty feet in depth, with a bottom width of fifteen feet and side slopes of one on one. Material excavated was in some cases sand, and in others a mixture of sand and clay. One machine has been working in a rock trench in a most satisfactory manner. The character of this rock is such that it is easily broken into sizes handled readily by the dragline bucket. The output of the machines is running up to 500 and 600 yards per day of eight hours.

Water for the machines is obtained by tapping the existing aqueduct, and, of course, an unlimited supply at high pressure is obtained. Coal is hauled in wagons by means of horses or Holt tractor.

Colonel Thomas Crimmins, President of the Crimmins Contracting Company, is directing all the work personally. Mr. F. N. Benedict, Vice President, is also responsible for many matters connected with the work. Messrs. John and Peter Thomas are the dragline operators.

Music Enthusiast: Say, you know a lot about that fiddle, don't you?

Budding Virtuoso: Yes, you see my bow is educated too!

M. E.: How's that?

B. V.: Why, it's taut.

In the Chair

I felt his soft breath on my cheek,
And the gentle touch of his hand.
His very presence near me
Seemed a breeze on the desert sand.
He deftly sought my lips,
My head he did unfold,
Then he broke the silence with,
"Shall the filling be silver or gold?"

—*Iowa Frivol.*

Revolving Shovel Operation on Heavy Logging Road Construction in North Carolina and West Virginia

How the Parsons Pulp and Lumber Company Economized by Installing Two Revolving Shovels on Their North Carolina and West Virginia Properties

THE Parsons Pulp and Lumber Company, whose head offices are at Philadelphia, operate two large properties, one in the Big Smoky Mountains in Swain County, North Carolina, and the other in Tucker County in northern West Virginia. As both of these properties are in extremely hilly and mountainous country the problem of constructing railroads in an economical manner was an extremely difficult one.

Ravensford Properties

The properties of this Company in North Carolina consist of approximately thirty-five thousand acres of virgin timber, owned by the Company in fee. This tract is estimated to contain six hundred million feet of merchantable timber, of which about three hundred million is spruce, about eighty-five million is hemlock, and the remainder chestnut, poplar, oak, basswood and other hard woods. The tract contains also large quantities of bark, pulp wood and acid wood. This great tract feeds the recently constructed saw mill at Ravensford, with a capacity of approximately thirty million to thirty-five million feet of manufactured lumber per year.

This property is known as the "Indian Lands," because it originally was owned by the eastern band of the Cherokee Indians, of whom there remain about twenty-four hundred, who still have extensive holdings in this section. Indeed, the Government maintains an Indian school about three miles from Ravensford.

The Parsons Pulp and Lumber Company bought the timber now to be developed about twelve years ago. Four years ago they erected a circular mill for cutting airplane stock for the Government. The above-mentioned band mill was built soon after the circular mill was put into operation. In connection with this development a standard gauge logging road has been built in connection with the lumber development. This railroad was laid principally with sixty-pound rails and now extends back into the timber. The spruce stumpage, however, lies at the opposite end of the boundary from the mill. Consequently, it has been necessary to extend the logging road in order to tap this tract, and to develop future log supplies of the mill.

This railroad construction is unusually heavy, consisting largely of side hill work. The roughness of this country can well be seen from the accompanying photographs. A considerable amount of loose and solid rock is encountered. It has also been necessary to fill a large number of cribs.

It Was Not All Straight Digging Up in the Mountains of West Virginia

How the Revolving Shovels Replace Hand Labor

Prior to the summer of 1919 the Company had been doing all its railroad work by hand labor, with pick and shovel. They figured at this time that the ordinary small revolving shovel mounted on traction wheels would have been of little or no assistance on account of the rough and mountainous character of the country. Furthermore, up to that time, labor had always been plentiful. In 1919, however, the scarcity and increased cost of labor made it apparent that another method of railroad construction would have to be found. To meet this situation the Company, after a thorough investigation, purchased the 18-B 7/8-yard Bucyrus revolving shovel mounted on caterpillars. This shovel has been kept in continuous operation on this and other railroad work on the Ravensford property.

An 18-B Bucyrus Excavating for a Logging Road in the Big Smoky Mountains, North Carolina

Heavy Going with a 30-B Bucyrus on the West Virginia Property of the Parsons Pulp & Lumber Co.

Operations in West Virginia

So successful and economical had this method of operation proved that in 1920 they bought another shovel for use on their West Virginia properties. This shovel is a 30-B Bucyrus, also equipped with caterpillars. This shovel carries a 1-yd. dipper.

The railroad logging operations on the West Virginia property are carried on under conditions practically the same as the conditions at Ravensford. It might be added that the Company operates a pulp mill at Parsons, West Virginia, and a saw mill at Horton in the same state.

Additional Savings Effected

It has been found that one of the greatest savings effected by the use of the steam shovel is in explosives. As stated before a large amount of rock was encountered. This rock could not possibly have been handled with hand labor without breaking into smaller pieces. It has been found in the case of both shovels that this rock could be handled without any trouble whatsoever.

Another item of importance is the clearing of the right-of-way. As the railroads are built right through the virgin forests the question of stump removal is quite an item. In building the railroad with hand labor it was necessary to blast many of these stumps, whereas the shovels handled them without any trouble, and, furthermore, without the use of explosives.

We are indebted for the above information to Mr. William McLean of the Parsons Pulp and Lumber Company.

This Gives an Excellent Idea of the Character of the Country through which the Road Is Being Built

The item of stump removal is quite a problem in clearing the right-of-way. The use of powder in handling these stumps was discontinued when the revolving shovels were put on the job.

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Bradlee Van Brunt, Manager and Editor

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Our Cover Illustration

The photograph which we reproduce on the outside cover of this issue illustrates a most interesting irrigation project now under way by the Atlantic Gulf and Pacific Company, about twenty-five miles out of Manila in the Philippine Islands.

This Company is operating three 30-B Bucyrus dragline excavators, equipped with 35-foot booms and 1-cubic-yard buckets. The canal is slightly over 20 feet wide on the bottom and about 15 feet deep with slopes of one to one.

It is an interesting fact that this Company is using native crews entirely, with excellent results. These men were used originally to run their derricks and have been with them for many years. They are paid in accordance with their yardage. We understand that they often get as much as 780 cubic yards of material per machine per ten-hour shifts. The superintendent is a Russian and is the only white man on the job.

· FIELD NOTES ·

Maintenance and Upkeep of Motors on Electric Shovels and Dragline Excavators

VI. Overheating of A. C. Motors on Electric Shovels and Dragline Excavators

This is the sixth of a series of articles dealing with the "Maintenance and Upkeep of Motors on Electric Shovels and Dragline Excavators" "The Maintenance of Motor Bearings" was treated in our September and October numbers of 1921. The "Rewinding of Induction Motors" in our January 1922 and February 1922 numbers. The subject of "Overheating A. C. Motors" which is treated in this installment was commenced in our May 1922 number. The complete set of six issues containing these articles may be obtained by sending 50c to The Excavating Engineer, South Milwaukee, Wisconsin. This is the final article of the series.

Short Circuited Coils

Should a coil or a number of coils in either the stator or the winding become short circuited, these coils will become very hot as a large current will flow in them. This heat will be radiated to the other coils, so that the entire winding will be subjected to undue heating. If this action is allowed to continue, the short circuited coils will become so hot in a short time that the insulation will be destroyed, while the insulation of the adjacent coils may become impaired by subjection to the radiated heat. After a time, the short circuited coils will begin to smoke, which should be taken as a danger signal by the operator, and the motor should be immediately taken out of service for repairs.

A test for short circuits may be made by feeling around the winding with the hand when the motor is running light to detect the presence of any coils which may be much warmer than the rest of the winding. While a number of other tests may be made to detect short circuited coil, these tests usually require certain testing equipment which is not available to the usual operator.

Improper Connection of Winding

Should an error be made in connecting a number of pole phase groups together, the same effect as raising or lowering the voltage on the motor would result. If the connection is such as to give the effect of a higher voltage, as would be the case if the winding was connected in parallel when it should be connected in series, the motor will have a pronounced magnetic hum, and will overheat very quickly.

Insufficient Ventilation

The successful operation of open motors depends upon a certain amount of air passing over the coils in order to carry away the heat generated in the winding. To obtain the required ventilation, a blower usually is placed on the end of the rotor to draw the necessary cooling air into the motor. If the ventilation of the motor is decreased, the generated heat is dissipated only by radiation which is usually insufficient to keep the temperature of the motor within safe limits, so that the coils are subjected to a temperature which may cause the insulation to be destroyed. For this reason, it is important to see that the motor is obtaining the required amount of air. If unsuitable

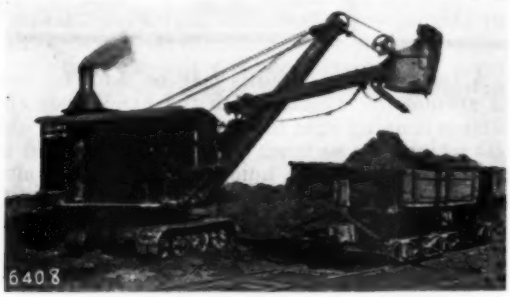
covers are placed over the openings in the end brackets in order to keep out dust, etc., the ventilation is impaired and the temperature of the motor increases unless the load on the motor is decreased or air is forced through it by means of an external blower.

Totally enclosed mill-type motors are often used for excavating shovels, as this type is especially suited for the service encountered in this application. As it would be necessary for these motors to dissipate the heat generated by radiation alone, they are usually supplied with forced ventilation from external motor driven blowers. Where an external blower is used the operator should see that the air intake openings and passages do not become clogged with lint or dirt as this would cut down the quantity of air supplied for ventilation and allow the motor to overheat. The blower and motor should be examined at regular intervals to see that they are operating satisfactorily and delivering the proper amount of air to the motor.

DEVICES YOU OUGHT TO KNOW ABOUT

A New ¾-yard Universal Shovel

The Bucyrus Company has just announced a new 20-Ton, ¾-yard revolving shovel to be known as the 20-B. This shovel replaces the 14-B revolving shovel so long and so favorably known.



The 20-B Bucyrus "Bullseye" ¾-yard Dipper—Weight 20 Tons

From boom point to ash pan this shovel is a distinctly new design. For four months this machine has been under test and on actual construction jobs, and is now being offered as the most up-to-date machine of this class on the market today.

In general the design follows along the lines of the Bucyrus 30-B universal shovel, its bigger 1-yard brother. It is a "Universal" machine, being adaptable to dragline, high lift, sewer, clamshell, crane and other combinations.

No effort has been spared to design every detail of this machine so as to make it easier to operate and more convenient to maintain than previous steam shovels of this size. This new machine contains a large number of new and exclusive features not found on other ¾-yard shovels.

Two-Part Hoist

These features include a two-part instead of a three-part hoist. This arrangement is the only practicable way whereby the dragline excavator can be made as good a dragline as the shovel is a shovel. Furthermore, wear on rope is reduced, a shorter rope is required, and faster digging speed is made possible without sacrifice of power.

Outside Dipper Handle and Box-Type Boom

This shovel also has the outside type of dipper sticks and box girder type of boom, similar to the 30-B. This has been proved, through many years of experience on the big 8-yard stripping shovels, to be the strongest possible construction for withstanding successfully the twisting and wrenching strains which are so severe in shovel work.

Improved A-Frame

The A-frame is directly connected to a steel center casting, the back leg instead of being attached to a structural rear end is also connected to this casting. This affords a more perfect and a more solid support than has heretofore been found on 20-Ton shovels.

New Dipper Design

The dipper has all four corners rounded, another exclusive feature which greatly increases the ability to free itself from sticky material.

Double-Hinged Latch Lever

The dipper latch is double-hinged, a device found on Bucyrus shovels for many years. This prevents bending of the latch or breakage if the dipper should hit the side of a wagon or truck. A device is provided for keeping the dump rope always taut for ease in dumping.

Improved Three-Lever Control

This shovel is extremely easy to operate. It is equipped with an improved and simplified three-lever control. One lever controls the independent operation of the throttle and the ram. This is a distinct improvement over other types. Furthermore, a release throttle is provided whereby the

dipper may be lowered without the need of applying the brake.

The shovel is equipped with two speeds. A change from one to the other may be made with one lever, similar to an automobile gear shift. Propelling may be accomplished without the need of closing a gate valve to the hoisting engines.

Larger Boiler

The boiler has a larger heating surface and grate area than that on other ¾-yard shovels and is further equipped with a patented scale chamber. The advantages of this scale chamber are many, making it possible to work with poorer water, with greater steaming efficiency and less delay. The boiler is further supplied with shaking grates, a safety guard around the water glass and a gauge for the water tank.

The house back of the boiler is of steel, which lessens the possibility of fire.

Stack Lowering Device

A further unique feature of this shovel is a device whereby the stack may be lowered by power, thus eliminating the possibility of damaging the stack and the rear of the house.

Increased Accessibility

Accessibility and simplicity of upkeep is prominent in the design throughout. One instance thereof is the ability of lifting out the vertical propelling shaft from the top instead of extracting it from the bottom, and another the fact that

The 20-B Bucyrus Dragline Excavator, ¾-yard Bucket, 35-foot Boom

the swing rollers are arranged so that they may be removed without the necessity of jacking up the frame.

Another point of superiority is the manner of centering the revolving frame on the base. This is accomplished by the revolving frame casting and the base center casting fitting into each other in such a manner that they take all the side thrusts. This relieves the vertical propelling shaft, which is depended upon ordinarily, to center the machine, of all strains.

Improved Caterpillars

The shovel is interchangeable from caterpillars to trucks or traction wheels. The caterpillars are a distinct improvement over any other type. Their points of superiority are so many that it is possible to enumerate but a few of them herein.

In the first place they contain less than half as many individual parts as the next simplest type built. This greater simplicity is obtained by superior design throughout.

Spinning around in a perfect circle. This shovel is equipped with an improved steering device.

There are only two rollers in each caterpillar. These are of large diameter with bearings high out of the mud and water. The driving is through direct gearing to the tumblers, no chains are used. The elimination of the side frames increases the accessibility and ease of repair and adjustment. The rollers may be removed without even disconnecting the caterpillar chain. The links are of one piece, made of a specially selected and specially treated steel. The pin connections are on the outside, not at the center. This assures a straight travel and prevents damage should a link strike an obstruction on its edge. There are only 23 links in each caterpillar. They form a perfectly smooth platform with no gaps between each link to pick up rocks and act as small jaw crushers. They won't rip up a pavement.

As for tractive power, this shovel has easily climbed out of a muddy pit on a 20 per cent grade of slippery clay.

The caterpillars do not extend at either end beyond the distance occupied by the traction wheels. This is of great importance in digging in small basements.

Improved Type of Steer

The shovel is equipped with the ideal type of steer, adopted after years of careful study and experimentation.

For operation in the pit, where a pit man is always available, a simple and effective hand steer is provided. The clutches are on the outside,

where they are accessible and high, out of danger of getting clogged with mud. There are no links and rods to get out of order.

For moving from job to job a patented power steering wheel is provided. This is an absolutely unique and exclusive feature of the 20-B. This device consists of a rubber-tired wheel which is easily and quickly attached to the front of the dipper. Steering is accomplished merely by pointing the boom in the direction of travel. The caterpillars track after this wheel. This device eliminates the delay incidental to stopping on the road to throw in and out clutches. The machine travels steadily and straight; it will not zigzag down the road. With this wheel it is possible to travel four blocks while shovels with other types of power steer are travelling two to three.

Combination

The 20-B is a superior dragline excavator. The arrangement of the machinery makes possible a straight lead for the drag rope. The fair lead affords a vertical as well as a horizontal lead to the rope, it reduces friction and rope wear to a minimum. The standard equipment is a ¾-yard bucket and a 35-foot boom.

The 20-B may be supplied with various lengths of booms and handles, to adapt it to high lifts for deep basement excavation and other work of this character.

For sewer and trench excavation also the 20-B

The 20-B Has Several Combinations of Extra Long Booms and Sticks for Work Requiring High Lift

may be equipped with various combinations giving it the greatest possible range of usefulness.

The 20-B is extremely useful for work also as a crane or clamshell machine.

Another unique feature of this machine is the use of electric steel in the smaller castings, making possible the most economic distribution of material. In strength and power this machine follows along with the same sterling qualities that for so many years have made the Bucyrus famous.

The enclosed postal addressed to the Bucyrus Company may be used in order to obtain further information relative to the 20-B.

Tieing Up Pit Operation and Road Construction

The Brereton & Bauck job on the Emmetsburg-Mallard Road, Palo Alto County, Iowa, furnishes one of the best examples of the tie-up between pit and road construction. The gravel was taken from the pit and hauled right to the mixer, and used as fast as it was mined for about one-half the job. For the other half of the job, the gravel was stock piled in one pile which contained 14,000 yards.

Loading Cars with a Barber-Greene Loader

At the pit a dragline was used which placed the gravel into a large pile. From this pile the gravel was loaded into batch boxes on industrial cars by means of a Barber-Greene Loader as shown in photograph No. 1. By means of industrial railway the gravel was hauled direct to the mixer for the first five and one-quarter miles.

During the latter part of 1920, only two miles were built of the first five, and during the winter the stock pile containing enough material for the last six miles of road were mined at the pit, loaded into batch boxes on industrial cars and hauled to the stock pile location. Here the boxes were unloaded by means of a Byers crane, which picked them up, dumped them by tipping, and thus built up a stock pile about 250 feet long x 115 feet wide x 13 feet high containing approximately 14,000 cubic yards.

In the spring three and one-half more miles were built by hauling materials direct from the pit to the mixer. Then it became necessary to shift the entire industrial haulage system to the stock pile which had been built up during the winter.

The Barber-Greene Loader was also moved to the stock pile, and the operation was continued from this point. The loader started at one corner of the pile and worked down the face which was 115 feet long, cutting a swath about 22 feet wide. Then the track was moved up and the loader returned in the opposite direction. Each car had 2 batches of 22 feet per batch, and each train con-

A General View of the Pit. Gravel was Hauled from Here Directly to the Mixer

sisted of 10 cars or 20 batches. On the average *20* batches were loaded by the Barber-Greene in *20* minutes.

Mr. Brereton of Brereton & Bauck Company writes: "In 50 working days the Barber-Greene handled 12,500 cubic yards of this pit-run gravel." The working days were 10 hours long. The contract required handling 28,000 cubic yards, 14,000 yards of which were handled twice, making a total of 42,000 yards which the Barber-Greene handled with hardly a repair. He also states, "We are not working our B-G loader to capacity for the reason that our industrial haulage outfit has a smaller daily capacity than the loader. We wish to say that for this particular contract, the B-G Loader has been an ideal machine."

For further information relative to the B-G Loader address one of the enclosed postal cards to the Barber-Greene Co., Aurora, Ill.

SHOTS FROM THE · FIRING LINE ·

Eastern District

BY E. B. WILLIAMS, NEW YORK

Hyter Atkinson is operating a Bucyrus Class-14 Dragline for the Massaponax Sand & Gravel Company at Fredericksburg, Virginia. Chris. James is keeping the fires hot on this machine.

D. L. Blake is operating an Erie Type B shovel at Richmond, Virginia, for C. S. Luck & Sons, excavating basement for the new Miller and Rhodes Department Store. E. J. Nichol is firing.

John N. Luck is operating an Osgood-18 for K. L. Black at Richmond, Virginia, excavating the basement for the new addition to the Miller and Rhodes Department Store at 4th and Main Streets. J. P. Nipon is keeping the fires hot.

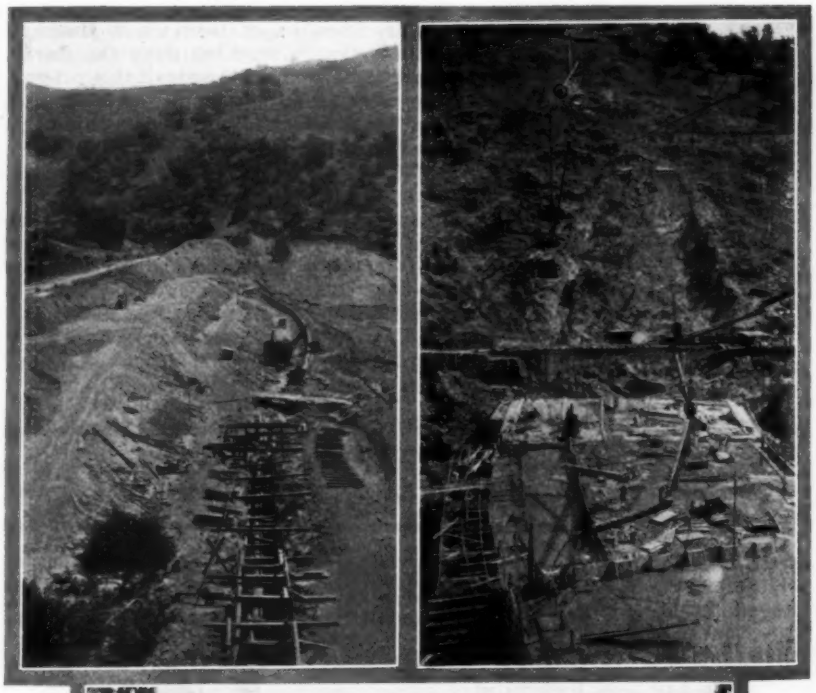
The Massaponax Sand & Gravel Co. of Fredericksburg, Virginia, is installing a new screening, crushing and washing plant about two miles from their present location. As the material in the old pit was fast becoming exhausted they decided rather than haul the material from the new pit back to the old plant they would install a modern and entirely up-to-date plant at the new location. This new plant will have, at the start, a capacity of fifty car loads per ten-hour shift, and will be equipped so that they can, if necessary, operate both day and night. They will have their 45-ton Bucyrus shovel, Class-B Lidgerwood dragline, and Class-14 Bucyrus dragline loading into special built railroad cars of about forty-yards capacity. These cars will dump directly from a trestle into a large hopper which will act as a feeder. A feature of the new plant is that all oversize material will be taken care of directly at the feeding hopper by an "oversize screen." The feeder will empty into this screen and material passing through will go by a belt conveyor up to the washing plant, then by gravity through the washing plant to the storage bins. Material not passing through the screen will go directly to the crusher, then back to the oversize screen by bucket conveyors, and on passing through the screen will be taken up to the washer by the belt conveyor. A second feature of the plant in its proposed layout is that all the freight cars used for shipping the material, will, after having been "set in" by the main line engine, go by gravity to the storage bins for loading, braking being done by hand, then continue by gravity to a point where they can be picked up in train-load lots by the main line engine. This eliminates the necessity of practically all local handling of the large cars by the plant engines. There are several other new features that are planned, and no effort is being spared to make the plant one of the best equipped and most efficiently operated in that section of the country.

Colonel Rexford, Asheville, North Carolina
Mr. Rexford is a partner of Mr. H. A. Wells of Asheville, in the firm H. A. Wells Construction Company, Asheville, North Carolina.

A. S. Brown is operating a Keystone Grader for W. E. Carter on basement excavation at the corner of 5th and Market Streets, Richmond, Virginia.

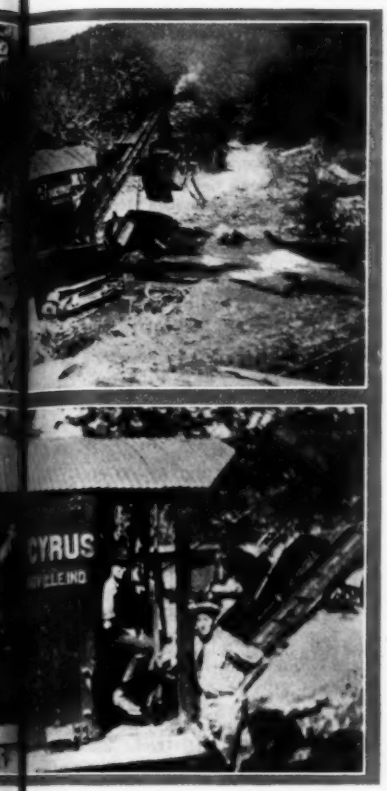
John Hannan is operating Castle Brothers' 18-B Bucyrus shovel grading 95th Street near Lenox Road, East New York.

Mike Torpey, who is an old hand in the game, is operating an Erie Shovel for the Godwin Construction Company in New York City.



The top view above illus[trates] wh[ich] Meriden, Conn., ha[s] wit[h] State Highway a[t] t[he] of th[e] Below this is a [view] of Ge[n] Paglam at t[he] of F. G[.]

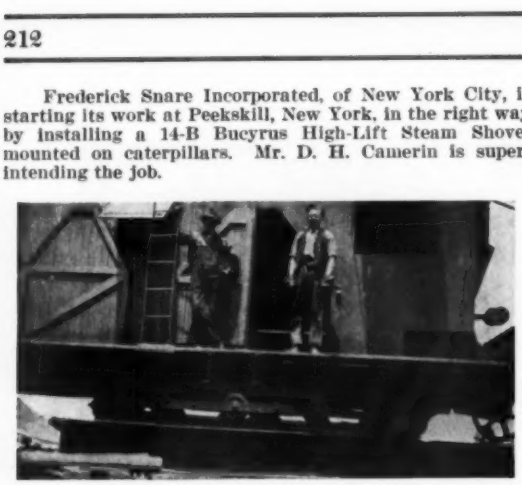
The upper left-hand group shows the progress which has been made on the Calaveras Dam of the Spring Valley Water Company at Calaveras, California, on May 8th. The hydraulic earth fill was partially completed several years ago; completion is now under consideration. A Marion Model 41 with an orange-peel bucket is now excavating clay for the core. The other two views show operations under way on the Don Pedro Dam on the Tuolumne River near La Grange. The bottom view shows Willitt & Burr's 70-ton Bucyrus shovel and outfit rented to the Modesto and Turlock Irrigation Districts excavating 200,000 yards for the spillway. This shovel is about sixteen years old but is still on the job doing good work.



...k which The Lane Construction Corporation of
...g with a 14-B Bucyrus on The New York
...of the Catskill Mountains, Cairo, N. Y.
...of George Williams, foreman, A. B.
...F.G. Dukley, making the smoke.

Armstrong & Trowbridge of Middletown, N. Y., busy on their Sullivan County highway work. They are using a 14-B Bucyrus. A. P. Reale is superintendent and Lloyd Burley operates the shovel. The middle picture is Mr. D. B. Trowbridge of the above firm with his Airedale "Bucyrus." Below is finished sub-grade of Armstrong & Trowbridge's work at Bullville, N. Y. The cutting was from ten to eighteen inches and was done with their 14-B.

Frederick Snare Incorporated, of New York City, is starting its work at Peekskill, New York, in the right way by installing a 14-B Bucyrus High-Lift Steam Shovel mounted on caterpillars. Mr. D. H. Camerin is superintending the job.



Chris. Brown, fireman (left) and Hyter Atkinson (right) shown on the front porch of a Bucyrus Dragline Class-14, owned by Massaponax Sand and Gravel Company, operating at Fredericksburg, Va.

Mr. Frank Palmer of Stamford, Connecticut, was low bidder on the dam and pond work, bids for which were opened in Stamford on Thursday evening, June 8th.

The Stamford Local Materials Company at Glen Brook, Connecticut, is contemplating the erection of a new crusher plant to increase their output of sand and gravel.

George Adams is operating an Erie shovel for the Connecticut National Pavements Incorporation of New Haven, Connecticut. He tells us that he started to learn the "game" many years ago on an old Bucyrus 70.

W. W. Foster is operating an 18-B Bucyrus shovel No. 1879 at South Durham, New York.

N. S. Colson is operating and C. M. Burke craning one of the Callahan Road Improvement Company's 70-C Bucyrus shovels at South Bethlehem, New York. He tells us that they are very busy getting out rock for the crushers.

John McArdle is operating and Joe Frank is firing an Erie B on highway work in Mineral County, West Virginia, for the Monongahela Construction Co. of Fairmont, West Virginia.

Joe Gall is operating a Marion Model 28 on highway work in Taylor County, West Virginia, for the Monongahela Construction Co. of Fairmont, West Virginia.

Michigan

Frank Hocking writes us that he is visiting in Highland Park, Detroit. This is Mr. Hocking's second vacation since 1915. He has been working for the Union Miniere De Haut Katanga at the Kambove Mines for the Belgian Congo in Central Africa for seven years. He left Kambove with his wife and family on the 6th of April and arrived in New York on the 28th of May. He reports that he and his family are all feeling fine.

Minnesota

Mr. S. L. Phelps is operating a 70-Ton Bucyrus shovel at the Maroco Mine, Ironton.

Mr. Phelps advises us that this shovel is an old-timer but is still in good shape and "can sure dig the dirt."

Northwestern States News

BY A. B. HANCE, PORTLAND, ORE.

A. C. Mathews, Eugene, Oregon, has just installed a 14-B Bucyrus clamshell machine. This machine is to work in connection with his gravel plant on the Willamette River, west of the city limits of Eugene. Mr. Mathews is now able to fully supply the demand for sand and gravel in his locality.

Sweeney, Holst & Keating of Tacoma, Washington, were recently awarded contract for 1.94 miles of road work on the Big Harbor-Longbranch Highway in Pierce County, Washington, at the letting by the Pierce County Commissioners, Tacoma, Washington.

Approval has been given by Secretary of Agriculture Wallace to several forest road construction projects in Oregon. These include a section of the Grant's Pass-Crescent City Road, to cost $10,000; a section of road between Neskowin and Devil's Lake, Tillamook and Lincoln Counties, $100,000; 7½ miles of road between Mount Hood and Wapinitia, $70,000, and the Cascadia Road, Lincoln County, $38,000.

On May 31st bids were opened by the State Highway Commission of the State of Oregon at the Multnomah County Court House, Portland, Oregon, for highway improvements in Coos, Gillian, Klamath, Tillamook and Umatilla Counties, and contracts were awarded, as follows:

To Warren Construction Co., Portland, Oregon: Coos Bay-Roseburg Highway, Myrtle Point-Camas Valley Section, Unit 1 (Myrtle Point-Bridge), 11.8 miles rock surfacing, 25,500 cu. yds. surfacing.

To More & Anderson, Heppner, Oregon; Oregon-Washington Highway, Heppner Junction-Morrow County Line Section, 9.6 miles grading and surfacing, 72,000 cu. yds. excavation, 22,000 cu. yds. surfacing.

To Klamath County Court: The Dalles-California Highway, Merrill Section, 2.6 miles grading and surfacing, 18,000 cu. yds. excavation, 5,850 cu. yds. surfacing.

To Tillamook County Court: Roosevelt Coast Highway, Hebo-Neskowin Section, 13.0 miles grading and rock surfacing, 113,000 cu. yds. excavation, 18,000 cu. yds. surfacing.

To Warren Construction Co., Portland, Oregon: Old Oregon Trail, Deadman's Pass-Kamela Section, 13.5 miles grading and surfacing, 100,000 cu. yds. excavation, 28,000 cu. yds. surfacing.

At Lewiston, Idaho, the $350,000 bond issue of the proposed Lewiston Orchards Irrigation District was recently authorized by a vote of 110 to 15. Title now passes from the Lewiston Valley Water Co. to the district. The bonds authorized are dated January 1, 1922, and run for 20 years at 7 per cent interest. They are to be accepted at par by the old company, which has already made a contract with the Puget Sound Bridge & Dredging Co. of Seattle to make improvements on the system totaling $266,000, and also $20,000 for improvement of the present district system.

D. P. Plymale of Bandon, Oregon, was recently awarded contract for work on the North Bank Road, Coos County, which includes clearing and grading of about two miles extending west from the Claussen Place. Contract was let by the County Court of Coos County.

Elliott, Scoggins & Paquet, of Portland, Oregon, were the successful bidders for surfacing of the Sisters Section of the McKenzie Highway which calls for 28,800 cu. yds. Bureau of Roads, New Postoffice Building, Portland, Oregon.

Contract for grading and surfacing 8.98 miles of the North and South Highway in Nez Perce County, Idaho, being Federal Aid Project No. 56, known locally as the Culdesac Hill, was awarded to Grant Smith & Co., of Spokane.

D. F. Murphy & Co., of Boise, Idaho, were low bidders for the construction of a section of the North and South Highway in Idaho County between Whitebird and Lucille, 9.94 miles, bids for which were recently opened by W. J. Hall, State Commissioner of Public Works.

Chas. H. Helmer was recently awarded contract for 1.7 miles of road work on the Idaho-Pacific Highway, south of Payette in Payette County, Idaho.

Morrison-Knudsen Company of Boise, Idaho, were recently awarded contract for grading 21.26 miles of road on the North and South Highway, Adams County, Idaho. This work includes 31,859 cu. yds. of solid rock excavation, 19,545 cu. yds. of loose rock excavation, and 220,949 cu. yds. of earth excavation.

The United Contracting Company of Portland was awarded the contract for the construction of a dam and diversion canal to transfer water from the Deschutes River to the Tumalo Feed Canal, in connection with the Tumalo Irrigation District, including 11,000 acres to be reclaimed, bids for which were opened by Fred N. Wallace, Secretary of the Board of Directors, Tumalo, Oregon, on May 27th. The above contract calls for 93,700 cu. yds. of excavation.

On May 16th bids were opened by the Washington State Highway Commission, Olympia, Washington, and the following contracts were let:

To Rich & Marcus, Missoula, Montana: Grading, draining and paving with concrete, about 6.55 miles of the Inland Empire Highway between Buena and Dalton in Yakima County, Federal Aid Project No. 92.

To Campbell & Wiltse Co., Sunnyside, Washington: Clearing, grading, draining, and surfacing with crushed gravel, about 3.85 miles of the Inland Empire Highway between Dalton and Granger in Yakima County.

To Pacific Coast Paving Co., Tacoma, Washington: Grading and draining about 0.9 mile of the Inland Empire Highway between Dixie and Coppei in Walla Walla County.

To C. E. Davison, Roundup, Montana: Clearing, grading, draining, and surfacing with crushed gravel, about 7.0 miles of the Pend Oreille Highway between Cusick and Locke in Pend Oreille County.

On May 9th and 10th bids were opened by the State Highway Commission of the State of Oregon, at the Multnomah County Court House, Portland, Ore., and the following contracts were awarded:

Skandia Shipbuilding Co., Marshfield, Oregon: 7 miles, 10,000 yds. excavation, 15,000 yds. surfacing, Roseburg-Coos Bay Highway, Coquille-Myrtle Point Section, Coos County.

Metzger & Johnson, Roseburg, Oregon: 10.8 miles, 24,000 yds. surfacing, Roseburg-Coos Bay Highway, Winston-Camas Mountain Section, Douglas County.

Elliott, Scoggins & Paquet, Portland, Oregon: 2.98 miles, 11,000 yds. excavation, 6,500 yds. surfacing, Walterville-Deerhorn and Doyle Hill Section of McKenzie Highway, Lane County.

Pat Lonergan, Pendleton, Oregon: 9.45 miles, 86,000 yds. excavation, 22,000 yds. surfacing, Sherman Highway, Biggs-Wasco Section, Sherman County.

Tillamook County Court: 4.7 miles, 38,000 yds. excavation, 9,000 yds. surfacing, Coast Highway, Mohler-Clatsop County Line Section, Tillamook County.

John Hampshire, Grant's Pass, Oregon: 4.28 miles, 192,000 yds. excavation, Coast Highway, Hunter's Head Secretary, Curry County.

S. S. Shell, Oakland, California: 3.46 miles, 20,000 yds. excavation, 8,000 yds. surfacing, Pacific Highway, Junction City-Harrisburg Section, Lane County.

Notes from the Pacific Coast

Contract has been awarded to General Contractors, Bent Brothers, 1714 Eagle Street, Los Angeles, for the construction of the Henshaw Dam, on the Warner Ranch in San Diego County, for the San Diego County Water Company. Work will involve 500,000 cu. yds. earth, 10,000 cu. yds. concrete. Dam will be an earth-fill type, with concrete core, probably concrete faced. This dam will be the first unit of a large construction program estimated to cost about $6,000,000.00. Construction will be started at once. J. B. Lippincott, Central Building, Los Angeles, is Chief Engineer, and C. H. Richards, Santa Ysabel, is Resident Engineer, for the San Diego County Water Company.

Another step has been taken in carrying out the construction program of the Magma Copper Co., with the awarding of a contract for the building of a 34-mile railroad between Superior and Magma Junction in Arizona, where the line will connect with the Arizona Eastern. The program for the copper company calls for the erection of a smelter at Superior costing in the neighborhood of $3,500,000. The construction of the railroad will cost $750,000, and will give employment to 800 men. Half of the road will be built across the desert and the remainder in the mountains. The contract has been awarded to the Twohy Brothers Construction Co. Operations will start at once.

Mr. W. G. Parrotte, who has been erecting a Bucyrus shovel for the Coos Bay Lumber Company, Powers, Oregon, was a visitor in this office early last month. Mr. Parrotte left for Whitewater, California, where he erected a 30-B Bucyrus dragline for the Lee Moor Contracting Company.

Six Ball mills with a daily capacity of 2500 tons, one reverberatory furnace, and two steam shovels, have been placed in commission by the Nevada Consolidated Copper Company. About 850 men are at work, and production is maintained at the Ruth Mine. Late developments in the Ruth property have placed a large tonnage of excellent ore in sight, and this material is being sent to the smelter with the lower grade material from the disseminated porphyry deposits. The management plans to gradually increase production until the mines and plant are operating at fifty per cent of normal capacity.

The City of Los Angeles took over in May the distributing properties of the Southern California Edison Co. The company was paid $12,044,000.00 in cash. The city also agreed to purchase at wholesale all the electric power it may require which is not generated from its aqueduct. The power purchase contract is to continue in effect for 30 years, unless cancelled by a vote of the people, but such cancellation cannot be made until ten years have elapsed.

Contracts calling for $1,500,000.00 worth of improvement on the Lincoln Highway across Nevada have been signed in New York by J. M. Gunn, President of the Lincoln Highway Association.

Oroville, California, gold dredging operations are drawing to a close. The Natomas Company will finish its ground this year, and the American Gold Dredging Company will finish its ground in two years. About ten years ago forty dredges are said to have operated in the district.

Bids were received June 12th, by the California Highway Commission, Forum Building, Sacramento, on 16½ miles of road to be graded between Trinidad and Freshwater Lagoon, Humboldt County, work involving 400,000 cu. yds. of excavation; 8 miles to be graded between Johnstonville and Janesville, Lassen County; 8.5 miles in Merced County.

Contract has been awarded by the Southern Pacific R. R. Co. to W. S. Mead, 243 Balboa Building, San Francisco, for the construction of extensions to sidings at Crystal Lake, Cisco, and Troy on the San Francisco and Ogden Line of the Southern Pacific R. R. Work will involve about 15,000 cu. yds. excavation, mostly rock, estimated cost of work $30,000.00.

Contract has been awarded by the Southern Pacific R. R. Company, to Utah Construction Company, Phelan Building, San Francisco, at approximately $20,000.00 for the construction of extension to tunnel line on the Southern Pacific R. R. near Redding. Work will involve about 1300 cu. yds. reinforced concrete.

Plans of the Union Pacific Railroad for creating a great manufacturing district adjacent to its mammoth shops and yards on the east side of Los Angeles are assuming gigantic proportions. It is pointed out that the mechanical needs of the railroad demand that the huge shops, round-houses and freight yards be completed and

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ready for operation without undue delay, and consequently it is expected that the big steam shovels will begin ripping up the earth in the very near future. That the Union Pacific Railroad intends to develop one of the largest concentrated industrial and railroad districts in the country on its 500-acre tract seems certain.

Under the scouring force of a 75,000-foot river, the levee that protects Palo Verde Valley from flood melted away like sugar. As a result, 10,000 acres of agricultural land is under water. A hundred families are homeless, and the flood current threatens to change its course and annex 20,000 acres of land in the California Valley to Arizona, completely isolating it from the Palo Verde irrigation system. This is the damage that has already been wrought, and the crest of the 1922 flood has not yet been reached. A 150,000-foot river, such as has been predicted, may multiply this damage many times.

Preliminary plans and arrangements were made in Fresno, California, the latter part of May by directors and engineers of the American River and Power Company of Auburn, to begin development of a combination hydro-electric and irrigation project for the northern part of the state. The project will be finished at a cost of $18,000,000. The power plant and dam will be located on the middle fork and north fork of the American and Rubicon Rivers. Impounded water will be used to irrigate approximately 200,000 acres of land in Sacramento and Placer Counties. The power company plans to build a 12-mile long flume to ship out the 3,000,000 feet of lumber on the company's property.

N. B. Ellery, former state engineer, and Jerome Barieau are completing preliminary surveys. Directors of the company include J. E. Walsh, President of the First National Bank of Auburn, F. P. Tuttle, Jr., Jerome Barieau, J. F. Dudley and W. S. Graham.

United Verde Copper Company, Jerome, Arizona, started operation last month of one of its large reverberatory furnaces at its Clarkdale smelter. A blast furnace will be started as soon as its crew can be organized, and then will be added another of the reverberatories. It is planned to put out about 5,000,000 pounds of copper a month, this calling for employment of about 2000 men in the mines, works and steam shovel pits.

The following contracts have been awarded for State Highway projects in Nevada: Elko-Hallett Road, 19.83 miles in Elko County, awarded to Phelps Construction Co., Ogden, Uath, $110,126, Johnson, Gillespie & Adamson & Russell, Salt Lake City, Utah, $124,470.00; Robinson Summitt to Illipah, 15.01 miles in White Pine County, awarded to J. H. Causten, Lovelock, Nevada, $93,027.00, Nevada Contracting Co., Fallon, $99,959.00; Illipah to Pancake Summit, 22.95 miles in White Pine County, awarded to Nevada Contracting Co., Fallon, Nevada, $174,778.00, Strange & Vallandingham, Salt Lake City, Utah, $188,713.00.

John J. Miller is pulling the hempen cord on a specially designed Marion shovel on the Edison's huge tunnel project in the Big Creek section of the mountain fastnesses of California.

The California Highway Commission has drawn plans for more than 200 miles of improved highway work for the remainder of 1922; some of the projects comprise considerable heavy work.

Within a short time more than a million and a half dollars will be expended by the federal government on California highway improvement work, the plans and estimates for the same having been approved by the Department of Agriculture. The approved projects comprise a strip of ten miles extending south from the Oregon line on the Crescent City-Grant's Pass Highway thirteen miles from Aden to Aden Summit, Modoc County, eleven miles from the Payne's Creek region to Mineral, Tehama County, a strip twelve miles from the west to the east line of Santa Barbara forest, Santa Barbara County, and a strip ten and a half miles extending from Deep Creek to Bear Creek Dam, San Bernardino County. This makes a total of fifty-six and a half miles of improved highways that will at once, it is believed, be put in process of construction.

Plans are being perfected for the construction of a railroad spur from the line of the Santa Fe railway near East Segundo to Wilmington, California, where a junction will be made with the Belt Line which serves Los Angeles harbor. It is understood that the work of construction will be conducted by the Santa Fe and Los Angeles Harbor Railway Co., a recent incorporation. Twelve miles will be embraced in the project. The right-of-way is being secured, construction work proper awaiting this.

The announcement is made that the Union Pacific will construct a branch line running from Selba, Utah, to Fillmore, Utah, a distance of 40 miles. The project will open to needed transportation an exceedingly fertile agricultural section.

Bond election was held June 1st and bonds voted in amount of $7,500,000 by the Imperial Irrigation District, El Centro, Imperial County, California. $5,000,000.00 of this issue will be used to purchase and consolidate the various mutual water companies, and the balance of $2,500,000 will be expended for the construction of an extensive drainage system. D. W. Murphy is Consulting Engineer of the District, and Ray S. Carberry, El Centro, is Chief Engineer.

Contract has been awarded to Twohy Bros., Phoenix, Arizona, who bid $108,093.00 for the construction of 4.1 miles of the Federal Aid Project No. 47, in Maricopa County. Other bids were received from Pacific Construction Co., San Francisco, $111,824.00; J. L. Hoopes, Miami, Arizona, $115,541.00.

Contract has been awarded to Twohy Bros., Phoenix, Arizona, for the construction of about 40 miles of railroad for the Arizona & Eastern R. R. Co., headquarters at Tucson, Arizona.

Permit has been granted by City Council, Los Angeles, to the Pacific Electric Railway Company, P. E. Building, Los Angeles, for the construction of a double-track railway tunnel 4,000 ft. long for the Hollywood and Glendale lines, estimated to cost $1,000,000. Plans will probably be approved by the State Railroad Commission in a few weeks.

Plans have been made by the Eureka-Nevada Railway, J. E. Sexton, General Manager, Palisade, Nevada, for the construction of 50 miles of railroad from Reynard, Washoe County, Nevada, northwest to California Line at the southeasterly boundary line of Modoc County, California.

Ohio

Jerry Byrn is operating a 225-B Bucyrus for the Narva Coal Company at Hopedale.

Oklahoma

W. L. Smith writes us that after moving from Cleveland, Georgia, he finds that he has no use for his compressor and drill outfit and is offering them for sale cheap. We believe that it is an excellent investment for any contractor having 5,000 to 10,000 cubic yards of rock work. The compressor was built by Schramm & Son of West Chester, Pennsylvania, and is in excellent shape. He has a rock drill with a supply of steel, and also a bitting machine, all of which he offers for 1,000 "bucks." This machine, he claims, will save the labor of 25 men in rock work. Mr. Smith may be addressed at R. 1, Earlesboro, Oklahoma.

Pennsylvania

Richard V. Kemery, a veteran shovel operator, is now enjoying a well-earned vacation at Audenreed. Mr. Kemery writes us that he has been on the job steadily for the past twenty years. He fired an Oswego boom for three years and pedaled the same for five years. He has

craned a 70-Ton Bucyrus for the past six years, and was engineer on an 18-B Bucyrus for the Lehigh and Wilkesbarre Coal Company at Audenreed. We surely agree with him that he has earned his rest.

Southern States Notes

BY C. N. BALLENTINE, E. J. WILKIE AND W. W. WHORLEY

M. L. Porter is running a 70-C Bucyrus shovel on the excavation work for the Memphis Terminals at Memphis, Tennessee. R. G. Hill & Co., of Knoxville, are the contractors. Mr. Porter's present address is at 183 West Carolina Street, Memphis, Tennessee.

E. H. Napier is craning for Mr. Porter on the 70-C Bucyrus shovel. Mr. Napier's present address is at 183 West Carolina Street, Memphis, Tennessee.

R. W. E. Thompson of Earle, Arkansas, is using an Erie B shovel for grading work on the Memphis Terminal project. This shovel is being operated by J. W. Flanary, who has been operating small shovels in Arkansas during the past few years. Mr. Flanary's present address is at 721 Arkansas Street, Memphis, Tennessee.

Mr. Clem of the Clem Gravel Company, Dallas, Texas, reports a big improvement in the gravel business in his section. He is now working both of his Bucyrus draglines top speed, and we hope with him that this activity will continue.

W. E. Callahan Construction Company is making excellent progress on the large irrigation project for the territory near Wichita Falls, Texas.

J. D. Morris is now running the 175-B Bucyrus shovel owned by the Manchester Coal Company at Manchester, Alabama.

Ed. E. Isreal of Birmingham is running a Model-61 for the Sloss-Sheffield Steel & Iron Company at the by-product plant in North Birmingham.

Mr. C. W. P. Babin, who formerly operated a tower machine near Rosedale, Mississippi, is operating a dragline for the Fluker Gravel Company at Fluker, Louisiana.

Mr. C. W. Fox, an old-timer at the dragline game, is with D. B. Hearin & Sons of Baton Rouge, Louisiana. His present address is Schexnayder, Louisiana. He advises that as soon as the mud is scraped off the old Bucyrus, she will be moving dirt once more.

The Meyer Construction Company of Hattiesburg, Mississippi, was awarded 15 miles of road work on June 6th, at Bay Springs, Mississippi. This is a link in the Jackson Highway.

The Atlas Portland Cement Company at Leeds, Alabama, are using their 30-B's to load the rock from the quarry. Mr. W. H. Kennewurth is removing overburden with a Class-14 dragline.

Our old friend J. T. Moses, is now running a shovel for the D. B. Gore Co., at Upland, Kentucky.

E. W. Parker of Tampa, Florida, was awarded contract by Orange County Highway Department for constructing 8 miles of road involving about 200,000 yards of excavating. This road runs from Bithlo to St. John's River and will eventually connect with a road in Volusia County to the east coast of Florida. The contract price was about $64,000.00. Mr. Parker will use a Bucyrus dragline on the work.

J. G. Weaver and D. W. Hooker are operating a Bucyrus dragline for Hammond Development Company about seven miles west of Pampano, Florida.

The Phosphate Mining Co. recently installed a Bucyrus dragline in their mines at Phosmico, Florida, near Bartow.

T. H. McGahey, Miami, Florida, contractor, is using his Marion 21 shovel for excavating the basement for the McAllister Hotel annex at Miami.

J. B. McCreary Engineering Corporation of Atlanta, who are constructing the La-Miami trail in Dade County, Florida, are making progress on the work and will soon be at the county line, having about ten miles to complete.

Reports from Port Tampa indicate some improvement in phosphate business. Shipments for May were larger than any preceding month during the past few years.

J. D. Donahoo is making good progress on his road contract near Westville, Florida. He is using a 30-B Bucyrus dragline.

St. Louis Items

BY A. B. KOENIG

The L. J. Smith Construction Co., Commerce Building, Kansas City, Missouri, have 85,000 yards of bank widening on the M., K. & T. R. R. between Paola and Parsons, Kansas, to sublet. This is good wheeler, slip and station work and will be let in quantities to suit outfits. Most of this work is suitable for outfits running from 4 to 12 teams. Free transportation over the M., K. & T. R. R. north of the Red River for men and outfits to and from the work.

The many friends of Jim Dunn of Dunn & McCarthy were shocked to receive news of his death in Chicago. Named Sunny Jim, as wherever he was there was sunshine, always an entertainer and a pleasant talker made him one of the most popular contractors in the country, and he will be sadly missed by thousands of his friends in this part of the country.

Sheldon & Co. are adding forces and making rapid progress with their Manchester road work west of the city.

John J. McCabe has subbed a piece of grading from Manigold Contracting Co. west of Delmar Garden here.

Johnston, Austin & Mautz were awarded contract for building a new coal mine spur at Clinton, Indiana, by the C. & E. I. R. R.

J. B. Ramsey has subbed a piece of Blythe Bros. work near Parker City, Indiana, on the Big Four R. R.

J. H. Hayes reports his 10-team outfit idle at Torrell, Arkansas.

Sutherland & Aymond are moving several piledriver and bridge outfits on to road work east of Belleville, Illinois.

J. J. McCaughey Co., 189 W. Madison St., Chicago, have 100,000 yards of very fine road work in Cook County to sublet at attractive prices.

Frank McCaughey came to town smiling the other day. Just returned from Kentucky, cleaned up at the races, but he is mum on the amount that he cleaned.

The Walsh Construction Co., Davenport, Iowa, were awarded one of the biggest contracts that has been let in many a day. They secured 3,000,000 yards of grading and 130,000 yards of concrete work, building a connection between the New York Central and Boston & Albany R. R. at Albany, New York. They are moving a big dragline and a standard gauge outfit, also 2 dinkey and elevating grader outfits on to this work. Dan Terry, Hampton Hotel, Albany, New York, will be in charge. They have sublet 1,000,000 yards of this work to Geo. Condon, Omaha.

Paul Grafe, formerly with the C. R. Cummins Co., passed through here on his way to Golden Gate, Illinois, where he is going to take charge of a dragline outfit for W. E. Callahan Construction Co.

Fred R. Jones Co., Chicago, are low bidders on track laying and ballasting the Peru and Decatur Division of the Wabash R. R. The Jones Company were also awarded a contract for tracklaying and ballasting the Chicago Division of the Chesapeake & Ohio R. R.

C. P. O'Reilly & Co., 724 Wainwright Building, St. Louis, have 57,000 yards of road work in Sullivan County, Missouri, to sublet. Would prefer to let this work to about a 15-team outfit or will split the work if necessary.

L. P. Yale, of Yale & Reagan, Chicago, was married to Miss Minnie Sattley. They spent their honeymoon in St. Louis.

A. Waddell, Ottawa, Kansas, wants a 5 or 6-team outfit on the Frisco R. R. at Hillsdale, Kansas. Can also use a 10-team outfit near Clinton on the M., K. & T. R. R.

Chas. Marshall has subbed 200,000 yards of grading from the Walsh Construction Co. at Hillsdale, Kansas, on the Frisco Railroad.

A. W. Riney left here for Bartlesville, Oklahoma, where he will be associated with his brother A. H. and the Phillips Petroleum Co.

L. I. Viall has taken a piece of Grant Smith & Co's. work on the Frisco Railroad near Garnsey, Missouri.

Contractors when in want of work or labor for their outfits write or wire Koenig Labor Agency, 612 Walnut Street, St. Louis, Missouri, or 501 Delaware St., Kansas City, Missouri.

By a 3 to 2 vote the trustees of the East Side Levee and Sanitary District authorized the contractors in charge of the work on "Project 12," a drainage canal being constructed at the foot of the bluffs to prevent the bluff waters from inundating the American Bottoms, to continue their work on Sections 1 and 2 of the contract. All bids for Section 3 of the project were ordered rejected. "Project 12" as originally planned called for the construction of a canal 50 feet wide at the foot of the bluffs and extending from a point opposite Winter Street on the north, a distance of eleven and one-half miles southward, connecting with the Prairie Du Pont Canal, a few miles north of Dupo, Illinois. In the opinion of engineers who devised the plan, such a canal would give the East Side District a system of drainage sufficient to take care of all bluff waters, and by connecting with other outgoing canals effectively prevent floods regardless of the height of the water in the river. Work is expected to begin at once.

Mike Haase of Kansas City was awarded a state road job near Trenton, Missouri.

The lowest bid received by Truman L. Flatt, County Superintendent of Highways at Springfield, Illinois, for construction of four miles of hard road from Cotton Hill south on the Sixth Street Road was announced May 29th as $100,777.80. The bid was made by W. F. Smith & Co. of Renssalaer, Indiana. The lowest bid for the work on the Beardstown Road, to continue the hard road from Bradforton to a point about six miles northeast of there was submitted by the Alzina Construction Co. and was $144,601.33. Five were submitted on the South Sixth Street project and three on the Beardstown project. It is believed that the contracts will be awarded within a few days and to the lowest bidder in both cases. Other bids submitted on the South Sixth Street work were those of C. J. Moritz, Inc., $107,466.03; C. E. Carson Co., Chicago, $113,911.90; Cameron, Joyce & Co., Keokuk, Iowa, $105,437, and Alzina Construction Co., Springfield, $108,766.18. The other two bids on the Beardstown Road work were submitted by C. J. Moritz, Inc., $160,115.97, and Cameron, Joyce & Co., $151,684.97. The Alzina Construction Co. bid $248,367.51 on the two jobs.

Contracts for the construction of forty miles of pavement were awarded by the Illinois State Highway Division, it was announced May 28th. Six miles will be in Henry County; 16 miles in Union County and ten miles in Pulaski. The six miles in Henry County, on Route 7, Section 3, was awarded to Capital Construction Co. of Des Moines, Iowa, on their bid of $125,199.60. Union County paving of 4.8 miles on Route 2, Section 12, and 8.5 miles on Section 13, were awarded J. E. Craine of Murphysboro, on a bid of $396,732.44. M. Haynes & Son of Janesville, Wisconsin, was awarded 6.47 miles on Route 2, Section 14, in Union-Pulaski Counties at $115,928.24; 3.67 miles on Section 15, in Pulaski County at $66,712.77 and 6.94 miles on Section 16, Pulaski County, at $137,901.41.

A resolution calling for the construction of a $504,000 sewer system in the northeastern part of East St. Louis, known as Lansdowne, was passed on June 5th at a meeting of the East St. Louis City Council. The project when completed will consist of eighteen miles of sewer and will drain approximately 800 acres of land which has for years been in need of adequate sewerage. A date for a public hearing on the proposition will be set in the near future by the council, and if the property owners affected view the matter in a favorable light an ordinance authorizing the work will be passed at once. It is hoped the actual work may be started in the fall.

Canada

Toronto and Vicinity

BY C. F. ENGLAND, TORONTO

The big event of the month just passed for Canadian earth movers is the Canadian Good Roads Congress held in Victoria, British Columbia. The program includes some very practical papers and discussions by American and Canadian Engineers of prominence in road work. Canada has a long way to go to equal the road-making efforts of her big neighbor to the South, but the experience of the latter is great inspiration to Canada's road men and they benefit to a degree which is almost impossible to value in dollars by these international discussions. Such subjects as new methods, new machinery, cost keeping, the proper location of roads, have a great practical value to Canada where many of the roads have to be located as well as brought up to date.

A special train left Ottawa for Vancouver on the 7th of June which picked up a large majority of the officials and delegates in each province. Probably no one train (at least in Canada), ever carried so much road-building talent.

The Ontario official delegation to the Road Congress in Victoria, British Columbia, included the Hon. F. C. Biggs, Minister of Public Works; W. A. MacLean, Deputy Minister; C. H. Fullerton, Highway Superintendent (Department of Lands and Forests); George Hogarth, Chief Engineer, Department of Highways.

The contract for the new bridge over the Don Valley for which the estimate was $750,000 will likely go to John E. Russell Construction Co., Limited, of Toronto, the lowest bidder.

Merlo, Merlo & Ray, Limited, of Walkerville, Ontario, have made good progress on their contract for Provincial Highway in Kent County, Ontario.

The Webster Construction Company are busy on their road-grading contract at Ridgetown, Ontario. They are using two Western Ditchers with great effect on that job, the first they have ever employed.

Mr. J. E. Caughey, of Wallaceburg, has a nice grading contract on which his gangs are now in full swing. He is doing some of the work with Fresno Scrapers.

Mr. C. Billie, of Montreal, has invaded Ontario territory with his characteristic hustle, and is now busy on provincial highway work here. He is using a variety of equipment from a one-yard shovel to a considerable outfit of drag scrapers.

McQuigge-Morse, Limited, of Excelsior Life Building, Toronto, Ontario, have opened an office here to take care of their thirty miles of provincial highway grading, into which they have already "dug in" with their usual vim. We visited Mr. Morse on the job where we found him supervising the setting up of two new camps, bringing in about forty teams, landing their steam shovel, arranging for a bunch of Western grading equipment, etc., yet he found time to drive us over the job, tell us about his plans and introduce us to Mr. C. MacKay and Mr. Weston, his able assistants.

F. R. Wilford & Company have a highway contract in Wellington County on which they are now busy.

Mr. Sinton of the Highway Department, Lands and Forest Department, has been on a lengthy motor trip of inspection through the northern part of Ontario. The problem of road pioneering through undeveloped country constantly confronts the Department's Engineers, who realize that scarcity of labor in thinly settled regions has to be offset by using equipment of the best type for such

rough and out-of-way work as grading roads through forests, swamps and rocky hills.

Grant Smith & Company and McDonnell, Ltd., are making great headway on their $3,000,000 contract for T. & N. O. Railway. Their construction office is at Cochrane, Ontario, of which Mr. J. H. Ward is in charge.

Mr. W. W. Murray is busy on the grading job at the Welland Canal, which he has subbed from J. P. Porter, Standifer & Porter Bros.

Nicholson & Bohan has six miles of grading for Provincial Highway Department near Shakespeare, Ont.

Wm. J. Porter & Company are handling some heavy earth excavation on Sections 1 and 2 of the New Welland Ship Canal.

McRae, Campaigne & Cook have recently been awarded contract by the Suburban Area Commission for penetration road work at Niagara Falls, Ontario.

The Dufferin Construction Company, Ltd., of Toronto, have recently added to their equipment Burch Stone Spreaders on their highway work, and which they report to be giving excellent satisfaction.

City of Montreal is just about to award contract for new reservoir, the lowest tenders being E. G. M. Cape & Co., Ltd. This reservoir is 500 feet square and 20 feet deep, and there are about 200,000 sq. yds. of excavating and about 20,000 yds. of concrete.

City of Montreal purposes building this summer a new 48-inch water line, 2 miles in length. It is expected that tenders will be called some time in July or August.

We had a visit this week from Mr. V. J. Cavicchi of the firm of Cavicchi & Pagano, General Contractors. Just at this moment they are practically through all their work and are looking for additional contracts.

The Thompson-Starrett Co., who are at present building the New Mount Royal Hotel in Montreal, have just been awarded contract for buildings, etc., in connection with the new plant of the Three Rivers Pulp and Paper Co. of Three Rivers, Province of Quebec.

Mussens Limited, of Montreal, Canadian Agents for the Bucyrus Company, celebrated their 21st business anniversary on the 15th of June.

City of Montreal has a very extensive street paving program, and hopes to get started on this quickly in order to take advantage of the fine weather.

John Donovan & Co., of Belleville, Ontario, are building two small cutoffs for the Canadian Pacific Railway at Godfrey, Ontario.

The Dominion Construction Co. has just been awarded a contract for 20 miles of logging railway for the Abitibi Pulp and Paper Co., of Iroquois Falls, Ontario.

Quebec Government is proceeding rapidly with its road program and has already awarded about 75 miles, and it is expected that by the middle of July all work for new roads and resurfacing old roads will be well under way.

Osterberg & Archibald Paving & Construction Co. are doing street paving work for Halifax, Nova Scotia. A portion of this work is in asphalt and a portion in granite blocks. Ed. Reid, of Reid & Archibald, is also connected with the above Company.

Dibona & Orland Bros., also Robert Mitchell, report good progress being made on the Halifax to Yarmouth Highway.

The Cape Breton Cold Storage Co. expects to start work shortly on their $200,000 Cold Storage Plant at North Sydney, Nova Scotia.

A new hospital for the Sisters of Providence is to be erected at Moncton, New Brunswick, at a cost of $200,000.

WESTERN NEWS

British Columbia

The auto road up Mount Revelstoke is to be pushed to completion this season, according to an announcement received from L. W. Humphrey, M. P., who states that he has the assurance of the Dominion Works Department that operations will be resumed on the road shortly. An appropriation has also been authorized for the prosecution of a survey of the Columbia River at Revelstoke.

Municipal Council awarded contract for 4,300 ft. of 4-in. water pipe to T. B. Ross & Co., of Victoria, at $2,745, plus tax. Council also approved of an order amounting to $1,809.20 being placed with the Taylor-Forbes Co., of Vancouver, for various fittings for domestic water extensions.

By-law providing for an ultimate issue of $750,000, of which $270,000 will be raised immediately to inaugurate a sewerage system in the municipality will shortly be submitted to the ratepayers. Clerk, H. S. Cowper.

Contract for erection of Memorial Hall in connection with St. Saviour's Church has been awarded to W. Pascoe and the plumbing contract to Harry Eperson. Stone construction. Total cost, $14,000.

East Kootenay Power Co., Ltd., has been formed to take over the British Columbia and Alberta Power Co. The company is installing a plant on the Elko River near here, which will have a capacity of 20,000 h. p.

Contract for erection of business block on southeast corner of Douglas and Fisgard Streets for Thos. R. Cusack and associates has been awarded to Luney Bros., Ltd. Cost $20,000.

Ratepayers passed by-law providing for an expenditure of $60,000 on street improvements this year. City Clerk, W. E. Wasson.

Pacific Pulp Mills Co. plans construction of a diversion dam at a cost of $500,000.

Winnipeg and Vicinity

Tenders were received by the Canadian National Railways on June 26th for the construction of water supplies, including excavation of reservoirs at the following points on the Western Lines: Wiseton, Saskatchewan; Rama, Saskatchewan; Pope, Manitoba; Maryfield, Saskatchewan; Mecheche, Alberta; Conquest, Saskatchewan; Tilney, Saskatchewan.

Mr. H. W. Tye has been appointed Superintendent of the Alberta Provincial Railway and the Lacombe and Northwestern. Mr. Tye was Construction Engineer for the Canadian Pacific Railway for nearly twenty years.

Mr. N. H. Bradley, formerly Assistant Engineer at Lethbridge, has been appointed District Engineer for the Peace River District by the Department of Public Works, Canada.

Mr. W. S. Tomlinson, and Mr. R. Macdonald of Macaw, Macdonald & Tomlinson, who have a large contract on the Chippewa Power Development in Ontario, are spending a few days in Winnipeg.

Reports from the Western Provinces indicate that prospects are excellent for a bumper crop this year. In fact it has been many years since the conditions at this time of the year seemed to be so favorable.

The Greater Winnipeg Water District are putting in operation a gasoline driven railway passenger car to operate between St. Boniface, Manitoba, and Shoal Lake — a distance of 92 miles.

Mr. J. C. O'Donnel, General Superintendent of the Canadian National Railways, who died at Moncton, New Brunswick, was buried in Winnipeg on Saturday the 10th. Mr. O'Donnel was for many years Trainmaster and Superintendent for the Canadian National Railways at Winnipeg and Edmonton. Although still a young man, Mr. O'Donnel had made wonderful strides in the railroad service and had a splendid future before him. The funeral service was held from his father's residence on Kitson St., Norwood, to St. Mary's Cathedral, hence to St. Mary's Cemetery.

The Canadian Pacific Railway's memorials of the services of its employees in the Great War of 1914-1918 were unveiled simultaneously on April 28th at various points over the system. In the West these tablets have

been placed in position at the following stations: Fort William, Winnipeg, Regina, Calgary, Edmonton, Vancouver and Victoria.

Mr. P. C. Kirkpatrick, previously located at Niagara Falls, Ontario, is now with Fraser Brace, Limited, at Great Falls, Manitoba, assisting in the construction of the power development work.

Heroism of a Shovel Operator

A story of extraordinary heroism has recently come to our attention in the case of Michael Ryan, a steam shovel operator working in the Imperial Irrigation District quarry at Andrade, California, and has prompted us to quote the following lines from a Calexico, California, newspaper:

"Additional details have reached here regarding the explosion of an old dynamite charge in the Andrade quarry early in the week, when Michael Ryan, steam shovel engineer, was seriously hurt.

It was shortly before 4 o'clock in the morning when Ryan, from his perch at the levers in the quarry at Andrade, where the Imperial Irrigation District procures its rock for revetting its Colorado River levee saw a thin blue line of smoke curling up from the spot from which the big dipper had just bitten off a piece of rock.

Experience told Ryan that he had dug into a missed hole. Investigation afterward developed that the charge of powder had failed to explode two years ago, and a careless employe had neglected to notify the foreman.

Yelling a warning to his crew, Ryan swung the big shovel around and dropped the dipper squarely over the spot where the smoke told him the charge was about to explode. Every foot the boom swung carried Ryan closer to danger but he stuck to his levers until the dipper came to rest.

Other members of the crew, the pit foreman and many laborers working about the quarry, warned by Ryan's shout and sensing the danger, had fled to safety behind a string of dump cars.

The blast sprinkled them with small rocks and sent a shower of larger missiles upon residences of the employes some distance away. The shovel was wrecked, the dipper blown from the stick, and the boom stripped. Great holes were torn in the sides of the cab and the string of cars badly damaged.

Just as the workmen were congratulating themselves that all had escaped possible death they found Ryan lying beside his wrecked shovel, a pool of blood widening about him.

Physicians from Yuma were called and made the 12-mile trip to Andrade at an automobile killing pace. Ryan, still unconscious, was brought across the river on the giant tramway with which the Irrigation District is building a weir at Hanlon's Heading and taken to the hospital.

A piece of wreckage had struck him on the head, causing an extensive fracture.

He had been at Andrade but a few days, going there from Los Angeles, where he has a wife."

How a Shovel Man Was Captured by the Bolsheviki

Those of our readers who read the article published on page 169 of our June number describing winter steam shovel operations in a Russian coal mine will be interested to learn that our old friend George W. Dunphy has advised us that he originally erected and operated the 150-B Bucyrus shovel described in this article in September 1917 just before the revolution.

He had hardly completed his work when the Bolsheviki swept through, grabbed him up, and put him in prison with 60 of the engineers and office men in the mine. He was held there for five months but eventually managed to escape with the assistance of a washer woman and a Cossack. It took him twenty-eight days to beat his way to the Caucasus, spending most of this time in a box car in extremely cold weather. He tells us that he was more nearly dead than alive when he finally got to his destination.

TRADE NOTES

L. S. Trainor has been appointed District Engineer in charge of the Illinois District of the Portland Cement Association, to succeed C. M. Powell, resigned. This office, located in the Conway Building, Chicago, has charge of association work in Illinois.

Mr. Trainor has been connected with the Portland Cement Association for the past three years, and has been engaged principally in Southern Illinois. Prior to joining the association staff he was County Superintendent of Highways, Marion County, and City Engineer of Centralia, Illinois.

Orton & Steinbrenner Company, manufacturers of locomotive cranes, grab buckets and coal crushers, have moved their offices from the 11th to the 19th floor of the Transportation Building, 608 South Dearborn Street, Chicago, Illinois.

During the past five years 24,526,415 cu. yds. of earth excavation was completed on federal aid contracts, according to a communication to Good Roads Magazine from the U. S. Bureau of Public Roads. The unit cost per yard in New England and the Middle Atlantic States (New York, New Jersey and Pennsylvania) during the entire period was twice the unit cost of earth excavation prevailing in other states. However, excavation in these eastern states forms a smaller part of road work than it does in other states; hence there is less competition among contractors. Also, labor is usually higher in the East than in the West.

Comparing the unit costs of earth excavation for the year 1921 with the year 1917, we find that 1921 costs are not very much higher than those of 1917; in other words, excavation costs have been materially reduced. During the years 1919 and 1920 excavation costs, in common with other road costs, reached their highest point, but in 1921 they started on a downward path and now are on a level comparable with that of 1917.

Portland Cement Association Forms Railways Bureau

Recognition of the pressing needs of railroads in maintenance and construction is shown by the Portland Cement Association in having just organized a Railways Bureau at its General Office in Chicago. This new Bureau will facilitate service available to railroad men through the resources of the Portland Cement Association for compiling and presenting authoritative data on railroad uses of concrete. Railroad officials have long realized the value of keeping abreast of developments in concrete construction and will appreciate the better service contact they are thus afforded.

D. A. Tomlinson, the Manager of the new Railways Bureau, is himself a railroad man. After graduating from the Massachusetts Institute of Technology in 1912 he was in the engineering department of the Chicago and Western Indiana R. R. for five years, where he had an unusually wide experience in railroad work. Leaving there to enter the army in 1917 as Captain, Coast Artillery, he was instructor in Railway Artillery and Orientation at the Heavy Artillery Training Camp at Fort Monroe, Va. For the past two years he has been connected with the Structural Bureau of the Portland Cement Association at the Chicago office and thus brings to his new position a knowledge of concrete and of the work and facilities of the Association, in addition to an understanding of railroad problems.

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The Western Line includes plows, wheeled, drag and fresno scrapers, blade graders, scarifiers, road maintainers, portable rock crushers, portable and self-contained gravel screening plants, dump cars in all practical sizes, bottom dump batch boxes and car trucks with industrial haulage for concrete road work, elevating graders, dump wagons, etc.

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Dredge on the Ways, Bow View, Showing Ladder and Cutter Head

20-inch Bucyrus hydraulic dredge reclaiming land for The Tokyo Bay Reclamation Company near Yokohama, Japan. At the time this picture was taken it was pumping through 3700 feet of pipe line at an elevation of five feet, at the rate of 400 cubic yards per hour.

The launching. The dredge was erected complete on the ways entirely by Japanese engineers and labor.

A 20-inch Hydraulic Dredge for Land Reclamation in Japan